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2 December 1969

LESSON TITLE : Aeromedical Programs  
DIVISION : Aeromedical Staff/OSA  
INSTRUCTORS :   
DATE/TIME : 1330 to 1630 on 26 March 1970

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PART I - OVERVIEW

1. LESSON OBJECTIVE: The objective of this lesson is for each student to become familiar with programs of the Aeromedical Staff/OSA. Specifically, the student will become familiar with the general physiological requirements for life-support equipment, the life-support system developed for and used in PROJECT IDEALIST,

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2. INSTRUCTIONAL AIDS: Vu-Graph Slides and overhead projector, 35 mm Slides and projector, 16 mm Movie and projector.

3. TIME REQUIRED: 2 hours 45 minutes

4. PLAN OF PRESENTATION: The instructor will introduce the lesson by describing the overall organization and function of the Aeromedical Staff. Life-Support Programs will be discussed in detail by describing the physiological requirements for

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life-support equipment, i. e., total barometric pressures, altered partial pressures, thermal balance, and protection during emergency ejections. In order to correlate physiological requirements with equipment in use, the life-support system as used in the U-2R will be discussed in detail.

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## PART II - TEACHING GUIDE

### A. INTRODUCTION

1. Aeromedical Staff: Organization and Function

2. Life-Support Program Overview:

Equipment types and categories

a. Aircraft Systems

b. Aircrew Systems

c. Training

### B. Physiological Requirements for Life-Support Equipment

1. Total Barometric Pressure

a. Mechanical effects of Pressure Change

(1) Areas affected

(2) Prevention/Protection

2. Altered Partial Pressures

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- a. Decompression sickness
  - (1) Areas affected
  - (2) Protection/Prevention
- b. Boiling of Body Fluids
  - (1) Areas affected
  - (2) Protection
- c. Hypoxia
  - (1) Cause and Effects
  - (2) Protection
- 3. Thermal Balance
  - a. Heat Loads
  - b. Heat Loss
  - c. Protection
    - (1) From Heat
    - (2) From Cold
- 4. Escape Provisions
  - a. Hazards
    - (1) Decision
    - (2) Decompression
    - (3) Separation
    - (4) Windblast
    - (5) Deceleration
    - (6) Spin

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- (7) Hypoxia
- (8) Frostbite
- (9) Parachute Opening Shock
- (10) Parachute Landing and Canopy Release
- (11) Survival

C. A DESCRIPTION OF U-2R LIFE-SUPPORT EQUIPMENT

- 1. Pressurization/Air Conditioning/Ventilation System
- 2. Oxygen System
- 3. Ejection System
- 4. Pilots Protective Assembly
- 5. Emergency Oxygen System
- 6. Survival Equipment

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